



**NOTES:**

1. SOLID LINE DEPICTS THE LEAKAGE PATH AND PRESSURE BOUNDARY FROM THE OUTBOARD MSIV's.
2. DASHED LINE IS NOT A LEAKAGE PATH (NOT IN SCOPE).
3. MAY BE OPEN OR CLOSED POST-LOCA. BOTH ARE ACCEPTABLE.
4. POST-LOCA VALVE MANIPULATIONS ARE PER PROCEDURE 5.2 FUEL
5. NOT ALL LINES SHOWN (e.g. INSTRUMENT AND SENSING LINES). VALVE ON THESE LINES NORMALLY CLOSED SEE NEDC 00-029 TABLE 1).
6. FLOW DRAWING NUMBERS SHOWN ON LINE e.g.: 2041
7. POTENTIAL LEAKAGE PATHS SHOWN WITH A "P" DESIGNATION, EXAMPLE: P1.
8. BOUNDARY CONDITIONS SHOWN WITH A LETTER IN A TRIANGLE EXAMPLE:  $\triangle A$ .
9. 2" NORMALLY CLOSED, OPEN POST-LOCA. (3 VALVES)
10. ADDED 2" VALVE TO CLOSE POST-LOCA. (1 VALVE)
11. ADDED 5" VALVE TO CLOSE POST-LOCA. (1 VALVE)

12. ADDED 1 1/2" VALVES TO CLOSE POST-LOCA. (2 VALVES)
13. 4" EQUALIZING VALVES NORMALLY CLOSED.
14. 2" VALVE TO CLOSE POST-LOCA. (1 VALVE)
15. INSTALL AND MANIPULATE SHAFT ADJUSTMENT SYSTEM POST-LOCA.
16. ADDED 1 1/4" VALVE TO CLOSE POST-LOCA. (1 VALVE)
17. ADDED 4" VALVE TO CLOSE POST-LOCA. (1 VALVE)
18. VALVES SHOWN IN POST LOCA POSITION.

19. 4" VALVES TO CLOSE POST-LOCA. (2 VALVES)
20. CLOSE ROOT VALVES POST LOCA (3 VALVES)  
3/4" VALVE MS-158  
3/4" VALVE MS-159  
3/4" VALVE MS-160
21. CLOSE ROOT VALVE POST LOCA  
3/4" VALVE MS-180 (1 VALVE)
22. 1" VALVE TO CLOSE POST-LOCA (2 VALVES)
23. 1" VALVE MS-787AV IS NORMALLY CLOSED (1 VALVE)
24. CED 6007261 INSTALLED THE FOLLOWING VALVES  
AS-680 AS-682 MS-1091  
AS-681 AS-683 MS-1092

25. REF. PART EVALUATION 4407771
26. REF TE-10546947, PE-4557907

REVISIONS BY N.P.P.D.					
NO.	REVISIONS	DFT	CKD	APP	DATE
N01	CED 6007261 (DCN 03-0983)	RGA	DLR	KG	7/15/03
N02	NEDC 00-029 (DCN 03-0765)	PAM	DJF	KG	3-1-04
N03	PE 4407771 (DCN 04-2903)	KPB	DJF	KG	7-29-05
N04	EE 07-004 (DCN 07-0197)	PAM	PAM	KG	4-17-07
N05	TE 10546947, PE 4557907 (DCN 07-1606)	RAC	DLR	KZ	10-4-10

SIGNIFICANT NUMBER	1	2	3	4	5	6
GROUP						

**LEAKAGE PATHS FROM  
OUTBOARD MSIV's  
COOPER NUCLEAR STATION**

CALC NEDC 00-029

DRAWN	DATE	 Nebraska Public Power District
RA/KJD	10/16/02	
CHECKED	DATE	
PKA FOR RLY	10-28-02	
APPROVED	DATE	
TPM FOR TDS	3-6-03	
FILMED		
<b>CNS-MS-43</b>		REVISION <b>N05</b>

CADD FILE: C0043212

**AS BUILT**  
**452244766**